

## Research Article

## Relations between imaginative experience and feeling with postural attitudes and tensions

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**ABSTRACT**

The present study examines the relationships between postural attitudes with mental imagined life situations, levels of subjective feeling of 30 undergraduate male and female psychology students. We think that the variations of muscular tone (Basic Tensions) are crucial not only for the form assumed from a posture and the feeling related to it.

Previous research and clinical experiences has shown the relationship between postural attitudes of the neck and shoulders, generated by different levels of muscle tension and styles of emotional organizing.

We hypothesize that the individual differences of postures can be considered almost a personality trait.

We used a grid to describe morphologically five postural attitudes. Subjects we asked 1- to imagine three living situations in which they feel well-differentiated features 2- then to reproduce mentally the same living situations and simultaneously to assume each of the postures indicated by the grid. For each living situation, after assuming each posture subjects were asked to indicate the vividness of the mental representation and the feeling level. The results have shown that some postural attitude significantly reduce the intensity of the negative feeling connected with the mental representation. Moreover, the different postures also significantly affect the vividness.

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**Introduction**

In the present research we want to examine whether and how different modalities in the organization of muscular tonic tensions characterizing some specific postural attitudes can lead to modifications of the feeling produced by the mental imaginative representation of some live situation emotionally significant. Relationships between emotions and posture are extensive literature, but we focus our attention on body image, postural attitudes, feelings, revisiting Fisher and Schilder..(Schilder,1935) investigations, unifying in a single process body image and body schema. In the experiment subjects were asked to imagine "living" three different situations in which subject : 1- feels devalued from the outside; 2- feels a loss of interest in an outside activity; 3- he feels that the environment provokes anger even requesting to assess the intensity of subjectively experienced, to assess the intensity of subjective feeling and vividness of the mental

image in a scale from zero to ten. The basal assumption is that self-representation in the brain is the mosaic like reproduction of information that, from the sensorial receptors (tactile and of muscle tone ) of all bodily district reaches the cerebral cortex (Ruggieri, 2001).

In a previous work (Ruggieri, Ed. 2011) we have distinct perceptual processes into two broad categories, one analogical, in which the perceptual system reproduces at the level of mental representation, the shape and the formal characteristics of the perceived object, and a non analogical, sensorial-perception that we called the "feeling". The feeling indicates a micro-emotional experience, belonging to the pleasure-pain, tension-relaxation dimensional axis. This perceptual distinction (analogical and of feeling), refers not only to single perceptual events but also to whole Body perception i.e. a perceptual process integrating all bodily information in an

unified self-representation (Body Image) at cerebral level. So subjects in relation to the Body Image have both forms of perceptual processes: an image reproducing the form of the body and the linked experience of feeling. For both processes the muscular “tonic” system plays a central role.

The background of the hypothesis is that muscular tonic bodily organization plays a relevant role in constructing the Body-Image and that there is relationship between Body Image (Body self representation) and experience of feeling.

Traditionally the literature distinguished between Body Image and Body Schema (Schilder, 1935), but at present a great emphasis is given on the role of sensory bodily information in the construction of Body Image. According to Fisher (1986) we prefer to speak of self-representation of the own body generated by the activity of sensory receptors (principally of the skin and muscles) of the body. This self-representation of the Body Image is located in the brain. The periphery of the body sends to the brain via afferents nerve pathways from receptors distributed throughout the body by stimulating cortical neurons in the brain, almost like pieces of a puzzle, producing the self-representation (Body Image). In this way the Body Image is a mirror image of the own body and its activities. In this generative process, the information of activities and tensions supplied from muscle receptors (proprioceptive sensibility) of the whole body, plays a decisive role. The muscle performs two types of activities: a tonic (basal tension) that is essential for maintaining postural balance, and a contractile (resulting in curtailing muscle) which is the basis of the movement. The self bodily representation in the brain is built primarily on the basis of the information of the tone of the muscles producing an unitary and whole bodily tension subjectively perceived. Thus it reproduces the morphological structure of the body. Addition, recent analysis of muscle activity (Ruggieri, 1988, Ruggieri, 2011) have highlighted its role in the genesis of feeling and emotion, revisiting in modern psycho-physiological optics James and Lange theory (Lange, 1887; James, 1890). So we have described the process of “emotion” as consisting of the following steps: 1- emotional stimulus (external or internal such as memories, mental images, etc.). 2- action of emotional stimuli such as cortical representations that take place in certain areas of the brain (visual, acoustic, etc.). They stimulate trough nerve pathways specific brain centers such as the hypothalamus, limbic system, insula, and so on. 3- the centers themselves trough efferent pathways by stimulating the activity of the bodily muscles produce mimic expressive activity and modify the tonic postural (trough the Gamma System), creating variation of tensions at the periphery of the body and producing behavioral patterns specific to each emotion. 4- muscle activity send information back to the brain (feedback mechanism). Here the changes in muscle tension are unified and produce the subjective feeling that is specific for each emotion (anger, joy, sadness, etc.). So we distinguish between emotion that refers to the whole process (starting with emotional stimuli acting on the brain centres) and the subjective feeling that is the final step of the process, specific

for each emotion. Over self- representation reproducing analogically the form of the body structure, the participant has an integrated perception of the basic mood that her body generates through the efferent pathways of the muscles. In previous research Ruggieri and Giustini (1991; 1994) showed a correlations between level of myographic tension of some muscles of neck and shoulders, specific forms of anger (measured through the Gottschalk) and personal contact styles.

So between Brain and Bodily activity there is a correspondence dual relay, connecting the body to the cerebral representation. In a previous essay (Ruggieri, 2001) the habitual postural attitudes of the individuals and the existence we observed and we singled out height types of postural habitual attitudes. The differences are due to different levels of muscle basal tone (muscle tension) of each area of the body and of muscles that connect the different areas. Our hypothesis is that each of these habitual attitudes corresponds to specific cortical self-representation, i.e. the Body image of their own bodies which is different among subjects). The Body Image (Ruggieri, 2001) also has a role as an organizer of muscular tonic basic tension and therefore it is a bridge between (input) a perceptive synthesis and (output) a programming of muscular tonic activity of the postural balance. So that bodily habitual attitudes also play a psychological-expressive meaning. This hypothesis linking the psychological dimension to the body, because the posture is assumed as formally corresponding to the mental representation, enormously expanding the functional significance of the posture itself. In fact, we interpret the posture as an existential "position" habitual that the individual takes in his way of being in the world. Important to specify that the postures due to the different levels of the basal tone (tensions) of the muscles of the different areas, can give different shapes to the relationship between the same areas, generating different individual specific attitudes. On the basis of this mechanism will produce *lines of force that run throughout the body generating different spatial orientations of single bodily parts and of the whole body*. The global perception of one's body, according to our hypothesis, is achieved through the integration of the tensions on one lived tensions specific feeling generator.

Therefore these the phenomenon of building a habitual postural attitude is the product of the force lines of district and inter-district bodily tensions, whose different directions and organizations, generates characteristic postural forms for groups of individuals. In fact, in previous work we have described on the basis of the guidelines of the tension lines (due to the attitude of muscle tone) the types of behavior (Ruggieri, 2001). For example, we distinguish between centrifugal and centripetal muscle tensions, upward, downward and so on directed (ibid.).

The feeling arises from these tensions.

In **Figure 1** we present some of these attitudes characteristic.

Aware of the fact that the combinations are endless lines of tension , we chose some type modes, including the subject

may indicate that where most recognize. Our psychophysiological conception however assigns to muscle tension also a function of generation of subjective experiences of stress that can produce subjective experiences (feeling of) very different from their own in relation to the mode of the orientations of lines of force that characterize a postural attitude. In addition, part of our luggage basic mental representations (mental images) are directly connected with the organization of muscular tension, as mentioned above. If, therefore, a mental image and a fortiori a bodily representation constitutes a basis for the development of cognitive processes, we argue that even muscle tension related to these representations are the basis of what is called feeling (feel subjective) attributed to the representations themselves.

### **Hypothesis**

After this brief introduction, perhaps we formulate the hypothesis of the present work. As will be better explained by the method, invite the participants to choose between some of the figures which are well represented in the lines of muscle tension that define a body attitude. Then at a later stage, the experimenter asked them to imagine "living" suggested a situation (a situation in which the subject feels devalued from the outside, he feels a loss of interest in an outside activity, in he feels that the environment provokes anger) even requesting to assess the intensity of subjectively experienced. In a third step we ask subjects to try to hire mentally, in random sequence, the various postures of the figures presented, to assess (and this is the case) if one or more posture changes the intensity of the subjective experience previously experienced. In other words, our hypothesis is that hiring patterns and posture different from the usual ones can change the intensity of emotional experiences and vividness.

### **Method**

The research was carried out through 3 steps:

- 1- Assumption of a mental representation suggested, of whom were indicated vividness and intensity of feeling.
- 2 - mental assumption of a postural pattern among the 5 proposed.
- 3- Subsequent definition of vividness and feeling of the representation previously requested.

### **Material**

The subjects were presented 5 figures representing 5 different postures each characterized by lines of force with different orientations produced by the orientations of the direction of tonic postural muscular tensions (fig.1). For each imagined situation the subjects chose the figure responding to their representation. Were presented deliveries and used a Likert scale (0-10) to evaluate the relative intensity of the vividness with which the subject saw the suggested self-representation, and the intensity of the lived experienced.

### **Subjects**

Subject are 30 (11 males and 19 females) undergraduate university student, aged between 20 and 40 years, average age of 27 years.

### **Procedure**

The subject was exposed a basic premise with the following words: "The body is crossed by lines of tension and strength of which has not always been aware of, related to the organization of muscle tone. We present some figures which indicate lines of tension prevailing. "Can you choose the one or the ones you represent".

Then were asked to imagine, in random sequence, three stimulus situations according to the following delivery:

Stimulus-Situation 1: "Can you now imagine a situation where you feel devalued by the external environment in which it appears a feeling of devaluation?". Immediately after the subject was to indicate the vividness with which they represented imaginatively such a situation imagined, on a Likert scale from 0 to 10 (where 0 indicated no intensity, 10 being the highest possible) and then was asked to indicate the intensity of the emotional experience experienced, always on a Likert scale from 0 to 10.

Then the subjects were asked, always randomly, to mentally assume one of the 5 representations in succession and indicate (for each figure) the vividness and intensity experienced as a result of this operation of visual imagery, with the following command: "Now I will show you the images that indicate various types of orientation of muscle tension and ask you to mentally reproduce the orientation of the tensions noted. How much clear you see the previous imaginatively stimulus situation representing your condition in which you felt devalued by the external environment? With which intensity you warn the feeling of devaluation?"

-The Second Situation imaginative suggested was presented with the following command: "Can you imagine a situation where you feeling a decrease of interest in an outside activity?"

-The Third Situation imaginative suggested was presented with the following command: "Can you imagine a situation where you feel that the environment causes anger?"

### **Results**

We observed an evident reduction for vividness and feeling while self representing assuming postural attitudes centrifugal characterized by lines of forces directions oriented centrifugal blocked and down-up and centrifugal. As we can see in table 1. The different mentally assumed postural images while is imagining a situation in which he feels devalued from the external environment showed.

Stimulus/ situation: devaluation	Basis	Fig. 1 Centrifugal blocked	Fig. 2 Bottom- up	Fig. 3 top- down	Fig. 4 Centripetal	Fig. 5 Centrifugal	F-value (df 5)	P
Vividness	6,733	5,233	5,067	6,600	6,233	5,533	3,292	.013
SD	1,721	2,029	2,982	2,343	2,459	2,515		
Feeling	5,233	4,633	4,567	6,367	5,967	4,767	5,965	.0002
SD	2,409	2,157	2,487	2,025	2,297	2,712		

**Tab.1** Mean value and standard deviation, of vividness and feeling in basal self representation and in mentally assuming the five figures with different lines of force orientation. There are statistical significant differences in vividness (One Way Anova, F 3,29. Df 5;28 p<.01) and feeling (One Way Anova, F 5,96, Df 5;28, p<.0002).

In particular with respect to basal vividness a statistically significant reduction appears for Fig 1. (t Student for related

means : 4.30, p < .002); Fig. 2 (t: 3.48, p< .001); Fig.5 (t: 2.43, p< .02) and with respect to basal feeling Fig. 1 and 2,

showed a statistically significant reduction of the subjective feeling (t Student for related means respectively for Fig.1 t:4.08, p< .0003; Fig. 2 t:3.63, p < .001).

Also in the Situation Stimulus 2 as indicate in table 2, we observed an evident statistically significant differences reduction for vividness and feeling for self representation suggested for fig.1, 2 and 5 (see Table 2).

Stimulus/ Situation:decrease of interest	Basis	Fig. 1 Centrifugal blocked	Fig. 2 Bottom-up	Fig.3 Top-down	Fig. 4 Centripetal	Fig. 5 Centrifugal	F-value	P
vividness	6,767	5,800	5,100	6,733	6,200	5,800	4,207	.0032
feeling	6,467	5,200	4,133	6,467	5,800	4,900	7,256	<.0001

**Tab.2** Are indicated the mean values of vividness and feeling in the different mentally assumed postural images while the subject is imagining a situation in which he feels decreasing of interest in an outside activity. Statistical significant differences in vividness (One Way Anova, F 4,207. Df 5;28 p<.003) and feeling (One Way Anova, F 7,256, Df 5;28 p<.0001) appear.

In particular with respect to basal vividness a statistically significant reduction appears for Fig 1. (t Student for related

means : 2,120, p < .04); Fig. 2 (t: 4,08, p< .0003); Fig.5 (t: 2,36, p< .002) and with respect to basal feeling Fig. 1 and 2, showed a statistically significant reduction of the subjective feeling (t Student for related means respectively for Fig.1 t:2,57, p< .01; Fig. 2 t:4,67, p < .0001; fig.5 t:3,66, p <.001).

In the Situation Stimulus 3 as indicate in table 3, we observed an evident statistically significant differences reduction for vividness and feeling for self representation suggested for fig. 1, 2, 3, 4 and 5.

	Basis	Tab 1	Tab 2	Tab 3	Tab 4	Tab 5	F-Value	P
vividness	7,833	5,800	5,900	5,900	7,000	6,267	2,669	.0357
feel	7,467	6,400	5,067	5,333	6,733	5,967	3,669	.0075

**Tab.3** Are indicated the mean values of vividness and feeling in the different mentally assumed postural images while the subject is imagining a situation that causes anger. Statistical significant differences in vividness (One Way Anova, F 2,669. Df 5;28 p<.03) and feeling (One Way Anova, F 3,669 ,Df 5;28 p<.007) appear.

In particular with respect to basal vividness a statistically significant reduction appears for Fig 1. (t Student for related means : 5,125, p < .0001); Fig. 2 (t: 5,491, p< .0001); Fig.3 (t: 4,754, p< .0001); Fig.4 (t: 2,481, p< .0192 ); Fig.5 (t: 5,323, p< .0001) and with respect to basal feeling Fig. 1, 2, 3, 4, 5 showed a statistically significant reduction of the subjective feeling (t Student for related means respectively for Fig.1 t:

2,023, p< .05; Fig. 2 t: 5,541, p < .0001; Fig.3 t: 4,154, p <.003; Fig.4 t: 2,027, p .05; Fig.5 t: 3,548, p .001).

**Conclusions and Comments**

The results of our study seem to confirm the hypothesis of the relationship between postural attitude and emotional experience, in particular, we have confirmed the role that the stress distribution at the level of simple straight-induced cerebral representation by the investigator, the feeling of change in the base. In particular in the first stimulation, which refers to the level of subjective experience of devaluation by the external environment, the assumption of postural patterns change in a statistically significant way the feeling; for, is observed for example a significant reduction of the

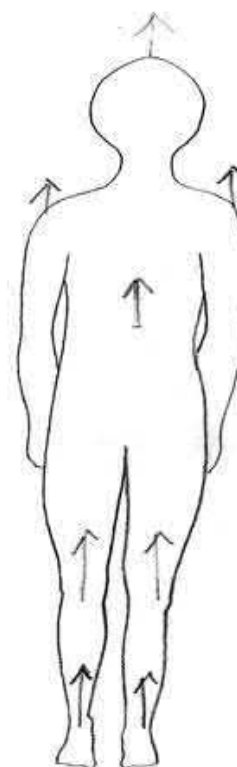
experienced, both as regards the subjective feel that the vividness with which the subject imagined the stimulus representation situation. Also for Figure 2, which represents an orientation of the lines of force of the body upwards, also exerts significant influence in reducing the level of vividness imaginative and feeling. For Figure 3, in which the bodily tensions tended to be oriented downward, perhaps because it corresponds to one of the boards mainly chosen by the parties, did not exert statistically significant also in Figure 4, which indicates lines of force converging toward the center, you do not detect significant effects in vividness and appeared to hear that instead of recruiting the Figure 5 with lines of force to centrifugal orientation of the various parts of the body, both in the vividness that in feeling.

As far as the Stimulus Situation 2, the drop in interest, the assumption of Figure 1 results in a significant reduction in vividness and feeling, as well as Figure 2 and Figure 5.

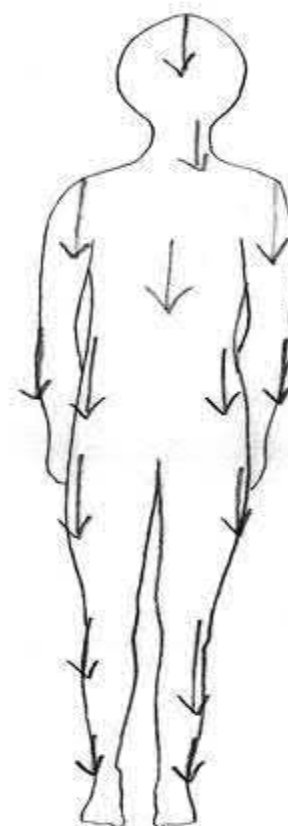
Regarding the anger, we saw that was characterized by a basic level of feel and the vividness particularly high, but also in this case the Figure 1 sortie reduction effects of both variables, as well as all the other tables .

In conclusion, the Tables 1, 2, 5, produce statistically significant differences in all three situations stimulus. The tables 1, 3, 4 , do not produce any effect except on the feel and the vividness of the stimulus situation regarding rage.

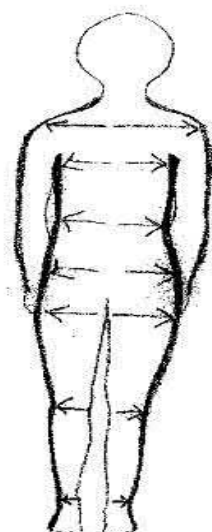
Our results as well as important in terms of experimental psychology , may have interesting applications in the field of psychotherapeutic treatment, psycho-physiological oriented embodied cognition. They allow us to understand how representations of mental order, being able to change attitudes about mental representations of one's body, can modulate levels of emotion and vividness affecting both self-esteem (feeling of devaluation), that the interest in an outside activity, which anger experienced by the subject and triggered by an external event, so even intervening to alter states of consciousness.



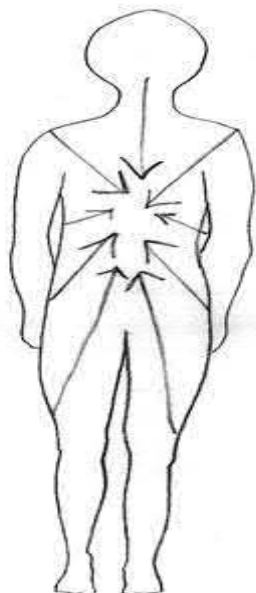
2



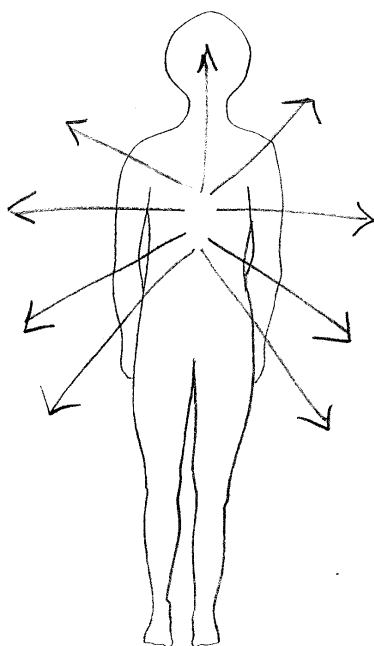
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1



4



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